Remarks

In the Office Action, the Examiner has indicated that claims 19-29 and 34 have been withdrawn from consideration, and claims 1-18 and 30-33 remain under consideration. With this amendment, claims 1-18 and 30-33 remain pending and under consideration.

Foreign Priority

The Examiner acknowledges Applicants' claim of foreign priority and receipt of the certified copy of the foreign priority document (*see* page 4 of the Office Action). However, the Office Action summary does not reflect consideration of these documents. Therefore, Applicants respectfully request that the Examiner mark the appropriate boxes on the Office Action summary, indicating acknowledgement of Applicants' claim of foreign priority and receipt of certified copy of the foreign priority document.

Applicants note that no translation of any foreign priority document is required to maintain Applicants' proper claim for priority.

Information Disclosure Statement

The Examiner lines out several foreign patent documents listed in the Information Disclosure Statements filed on June 20, 2007 and October 12, 2006, allegedly because the documents were not submitted with English-language translations or Abstracts. In response, Applicants note that the abstracts of each of the lined-out documents were listed on a separate section of the Form PTO-1449 and that the Examiner did consider those abstracts, as demonstrated by the initialed Form. Thus, no further action is required by the Examiner to indicate consideration of the documents Applicants have filed.

Objections to the Claims

The Office Action objects to claim 12 for reciting "therefor." The Action states that "therefor" is a misspelling and should be "therefore."

The Office is mistaken. "Therefor" means "for it." Thus, "introducing the cell-containing solution from the inlet *therefor*" means "introducing the cell-containing solution from the inlet *for it*." In other words, the "inlet" is for the "cell-containing solution." The word "therefore" means "consequently," or "in consequence," and is used in the context in which a later clause is the consequence of a former clause. "Therefore" is not correct in this claim and would render the claim's meaning uncertain and perhaps indefinite. Applicants respectfully request withdrawal of the objection.

The Office Action also asserts that claims 7 and 8 are duplicative (*see* page 9 of the Office Action). However, Applicants note that claim 7 recites "wherein the nucleated cell-diluted layer and the nucleated cell-concentrated layer are introduced into the filter device in this order" and claim 8 recites "wherein the nucleated cell-concentrated layer and the nucleated cell-diluted layer are introduced into the filter device in this order." The different orders in which the cell-diluted layer and the cell-concentrated layer are introduced into the filter device distinguish these claims.

Claim Rejections – Obviousness-Type Double Patenting

The Office Action rejects claims 1-18 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 6, 12-17 of U.S. Patent No. 6,268,119 (hereinafter "SUMITA") in view of Oka et al. (U.S. Patent No. 5,298,165, hereinafter "OKA 1"), Oka et al. (U.S. Patent Application Publication No. 2004/0251195, hereinafter "OKA 2"), Fukuda et al. (WO 02/087660, hereinafter "FUKUDA"), and Rubenstein et al. (Proc. Nat'l Acad. Sci. USA, 1995, 92:10119-10112, hereinafter "RUBENSTEIN"). Applicants respectfully disagree with the Office.

On page 6, line 1, through page 7, line 4, the Action discusses elements of the present claims. On page 7, lines 5-15, the Action discusses the elements of the claims of SUMITA. The Action then describes those elements of Applicants' claimed invention that are not claimed in SUMITA. The Action proceeds to assert that, "[h]owever, at the time the invention was made, [elements of Applicants' claims not recited in SUMITA's claims] were well known and used in

the prior art." (Office Action, page 7, lines 20-21.) Applicants respectfully submit that this analysis misses the relevant question for obviousness-type double patenting.

Obviousness-type double patenting asks whether the latter claims are obvious variants of the former *claims*. An obviousness-type double patenting rejection asks whether claims are obvious in view of other claims. While resort to other prior art is acceptable for purposes of determining the meaning of the earlier claims, it does not change what is the basic inquiry: whether the differences in the later claims would be obvious in view of the earlier claims.

Section 804 of the Manual of Patent Examining Procedure ("MPEP") explains that:

> A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the **reference claim(s)** because the examined application claim is either anticipated by, or would have been obvious over, **the reference claim(s).**

Thus, a proper obviousness-type double patenting rejection should compare the *claims* of one application to *claims* in another U.S. patent or U.S. patent application. The MPEP further explains the difference between a double patenting rejection and obviousness rejections:

> One significant difference is that a double patenting rejection **must rely on a comparison with the claims** in an issued or to be issued patent, whereas an ... obviousness rejection based on the same patent under 35 U.S.C. 102(e)/103(a) relies on **a comparison with what is disclosed** (whether or not claimed) in the same issued or to be issued patent. (*see* MPEP § 804, emphasis added)

In the rejection, the Office appears to make the case for why the elements of Applicants' claims would be obvious over the prior art as a whole – not why they would be obvious over the earlier claims. Applicants respectfully submit that the rejection fails to address this critical inquiry, and must be withdrawn for at least this reason.

Regardless of how the Office structures its rejection, Applicants respectfully submit that the presently claimed invention is not obvious in view of the claims of SUMITA. Claim 1, for example, recites (among other things), "wherein the above-described method is characterized in that the cell-containing solution that contains nucleated cells and unnecessary cells are separated

into a layer that is rich in nucleated cells and a layer that is rich in unnecessary cells, the layer rich in unnecessary cells is first introduced into the above-described filter device, and the layer rich in nucleated cells is then introduced therein, so as to discharge the unnecessary cells remaining in the above-described filter device while capturing the nucleated cells by the above-described filter material, and a recovery solution is then introduced into the above-described filter device, so as to recover the nucleated cells captured by the above-described filter material." Applicants respectfully submit that none of the claims of SUMITA suggests these elements of claim 1.

Similarly, claim 12 recites (among other things), "wherein the above-described method is characterized in that it uses a filter device formed by packing a container having an inlet and an outlet for a cell-containing solution with a filter material obtained by stacking a nucleated cell-capturing material and a recovery solution-rectifying material, which consist of porous bodies wherein the value obtained by dividing the effective filtration area of the above-described filter material by the thickness of the nucleated cell-capturing material packed is between 15 and 120 cm, such that a nucleated cell-capturing material is located on the inlet side of a cell-containing solution, and in that the above method comprises introducing the cell-containing solution from the inlet therefor into the filter device, so as to capture nucleated cells by the filter material, discharging unnecessary cells from the above-described filter device, and introducing a recovery solution from the outlet side for a cell-containing solution, so as to recover the nucleated cells captured by the above-described filter material from the inlet side for the cell-containing solution." Applicants respectfully submit that none of the claims of SUMITA suggests these elements of claim 12.

In view of the foregoing remarks, Applicants respectfully submit that the obviousness-type double patenting rejection is untenable and should be withdrawn.

Claim Rejections – 35 U.S.C. § 103

The Office Action rejects claims 1-17 and 30-33 under 35 U.S.C. § 103(a) as being obvious over SUMITA in view of OKA 1, OKA 2, FUKUDA, and RUBENSTEIN.

Prior to addressing the rejections, Applicants will provide a brief explanation of the invention. Initially, it is important to recognize that in claim 1, the layer rich in unnecessary cells is first introduced into the filter device, and the layer rich in nucleated cells is then introduced therein, so as to recover the nucleated cells. The following advantages exist in a system in which the cell-containing solution is separated into a layer that is rich in nucleated cells and a layer that is rich in unnecessary cells, the layer rich in unnecessary cells is first introduced into the filter device, and the layer rich in nucleated cells is then introduced therein. First, the unnecessary cells remaining on the filter can be washed with the layer that is rich in nucleated cells. Thus, the amount of unnecessary cells remaining on the filter can be decreased, and the purity of the recovered nucleated cells is increased. Second, as compared with the case where an un-separated cell-containing solution is introduced into the filter device, the amount of liquid which is used for capturing the nucleated cells on the filter material can be decreased. The nucleated cells remain near the surface of the filter material and thus, the nucleated cells can be easily recovered.

Applicants respectfully submit that a person skilled in the art, trying to improve on methods for recovering nucleated cells, would normally avoid introducing unnecessary cells into the filter device, and would avoid introducing a layer rich in unnecessary cells that were separated into the filter device. Applicants respectfully submit that these features of the present invention are not taught or suggested by any of the cited art.

Turning now to the Office Action, in the paragraph spanning pages 10-11, the Action explains that it believes the features of claims 11-17 are not taught by SUMITA. For these missing features, the Action relies upon OKA 1. However, Applicants respectfully note that claims 11 and 12, and claims 13-17 through their dependence on claim 12, recite that the value obtained by dividing the effective filtration area of the filter material by the thickness of the nucleated cell-capturing material packed is between 15 and 120 cm. Neither SUMITA nor OKA 1 disclose or suggest this aspect of claims 11-17, and thus, cannot render obvious claims 11-17. Applicants respectfully note that this feature of the claims is a feature of the filter device, which is suitable for the method wherein the layer rich in unnecessary cells is first introduced into the filter device, and the layer rich in nucleated cells is then introduced therein, so as to recover the

nucleated cells. Applicants respectfully submit that this feature is neither taught nor suggested by the cited art.

Applicants also note that the object of OKA 1 is to provide a method for removing leukocytes, by which the remaining concentration of leukocytes in the leukocyte-containing blood preparation is 10^{-4} or less (column 7, lines 22-25). The advantage is that pressure loss at filtering is small, that great decreases of flow rate due to treatment of blood preparation does not occur, and that the remaining concentration of leukocytes is 10^{-4} or less (see column 21, "Industrial Applicability"). OKA 1, however, discusses nothing about a method for recovering captured leukocytes and about the recovery efficacy for leukocytes. The description that "the remaining rate of leukocyte is low, namely the capture rate of leukocyte is high," does not suggest that the captured nucleated cells can be efficiently recovered. Rather, since high capture rate of leukocytes implies strong adsorption of leukocytes to non-woven fabric, one skilled in the art would expect the recovery rate of leukocytes to be decreased, and would not attempt to use the filter of OKA 1 for recovering nucleated cells. For these reasons as well, a person of skill in the art would not combine the teachings of SUMITA with OKA 1, and these documents do not render obvious the present invention.

At page 12, lines 14-18 of the Action, the Office explains that the features of claims 1-3 and 6-8 are not taught by SUMITA and OKA 1. For these missing teachings, the Office Action relies upon OKA 2, FUKUDA, and RUBENSTEIN. However, Applicants respectfully submit that each of these secondary references is deficient for other reasons. OKA 2, for example, discloses that leukocytes are filtered out after blood samples are separated into several blood components by centrifugation (paragraph 0005), but discloses nothing about preparing a cell concentrate wherein the layer rich in unnecessary cells is first introduced into the filter device, and the layer rich in nucleated cells is then introduced therein, so as to recover the nucleated cells (as recited in claim 1). Thus, even if combined, SUMITA, OKA 1, and OKA 2 fail to render obvious claims 1 and those dependent therefrom.

FUKUDA discloses a method of removing leukocytes from blood samples by forming a blood cell concentration gradient in a pooling unit before introducing blood into a filter for eliminating the leukocytes. However, the object of FUKUDA is to improve the filtration

performance of the filter, and to provide a method for filtration of blood, which can be easily operated, along with an automated filtration device suitable for the method. FUKUDA describes as an advantage that leukocytes can be efficiently removed and that platelets can be highly recovered. But FUKUDA does not disclose a method for recovering the nucleated cells captured by the filter material, and does not disclose that the nucleated cells can be efficiently recovered. Thus, even if combined, SUMITA, OKA 1, OKA 2, and FUKUDA fail to render obvious claims 1 and those dependent therefrom.

The Action admits that SUMITA, OKA 1, and OKA 2, and FUKUDA fail to disclose the elements of claims 3 and 6, and for this missing teaching, the Office relies on RUBENSTEIN. While RUBENSTEIN discloses that leukocytes can be efficiently removed, it fails to disclose or suggest that nucleated cells can be recovered. In fact, one would expect from RUBENSTEIN that the recovery rate for the leukocytes is decreased, since efficient removal of leukocytes implies strong adsorption of leukocytes to the non-woven fabric. Thus, even if combined, SUMITA, OKA 1, OKA 2, FUKUDA, and RUBENSTEIN fail to render obvious claims 1 and 12 and those dependent therefrom.

The Office Action also rejects claims 1-18 and 30-33 under 35 U.S.C. § 103(a) as being obvious over SUMITA in view of OKA 1, OKA 2, FUKUDA, RUBENSTEIN, and further in view of Tanaka et al. (U.S. Patent No. 6,048,464, hereinafter "TANAKA").

Applicants have discussed SUMITA, OKA 1, OKA 2, FUKUDA, and RUBENSTEIN above, and submit that those documents cannot be combined to render obvious any of the pending claims. With respect to TANAKA, Applicants note that the object of this disclosure is to provide a filter device and method for removing leukocytes, wherein leukocytes can be removed from leukocyte-containing liquid, such as a whole-blood composition at a high removal rate for leukocytes, while loss of useful blood components is greatly suppressed (see column 3, lines 19-46). The advantage of the disclosure of TANAKA is that leukocytes which cause side effects can be very effectively removed, while maintaining high recovery rate of useful blood components (column 30, lines 59-63). In particular, TANAKA does not disclose a method for recovering nucleated cells captured by the filter material, and does not disclose that nucleated

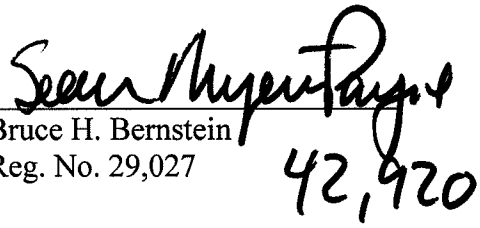
cells can be efficiently recovered. While TANAKA may state that leukocytes can be efficiently removed, this does not imply that nucleated cells may be recovered.

For the foregoing reasons, Applicants respectfully submit that SUMITA, OKA 1, OKA 2, FUKUDA, and RUBENSTEIN fail to teach or suggest the presently claimed invention, and TANAKA does not add to the disclosure of SUMITA, OKA 1, OKA 2, FUKUDA, and RUBENSTEIN. Applicants respectfully submit that SUMITA, OKA 1, OKA 2, FUKUDA, RUBENSTEIN, and TANAKA, alone or in any combination, fail to disclose or suggest Applicants' claimed invention.

Applicants hereby authorize the charging of any required fees necessary for consideration of this paper to Deposit Account No. 19-0089.

Any comments or questions concerning this application can be directed to the undersigned at the telephone number given below.

Respectfully submitted,
Shuji TERASHIMA et al.



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December 5, 2008
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